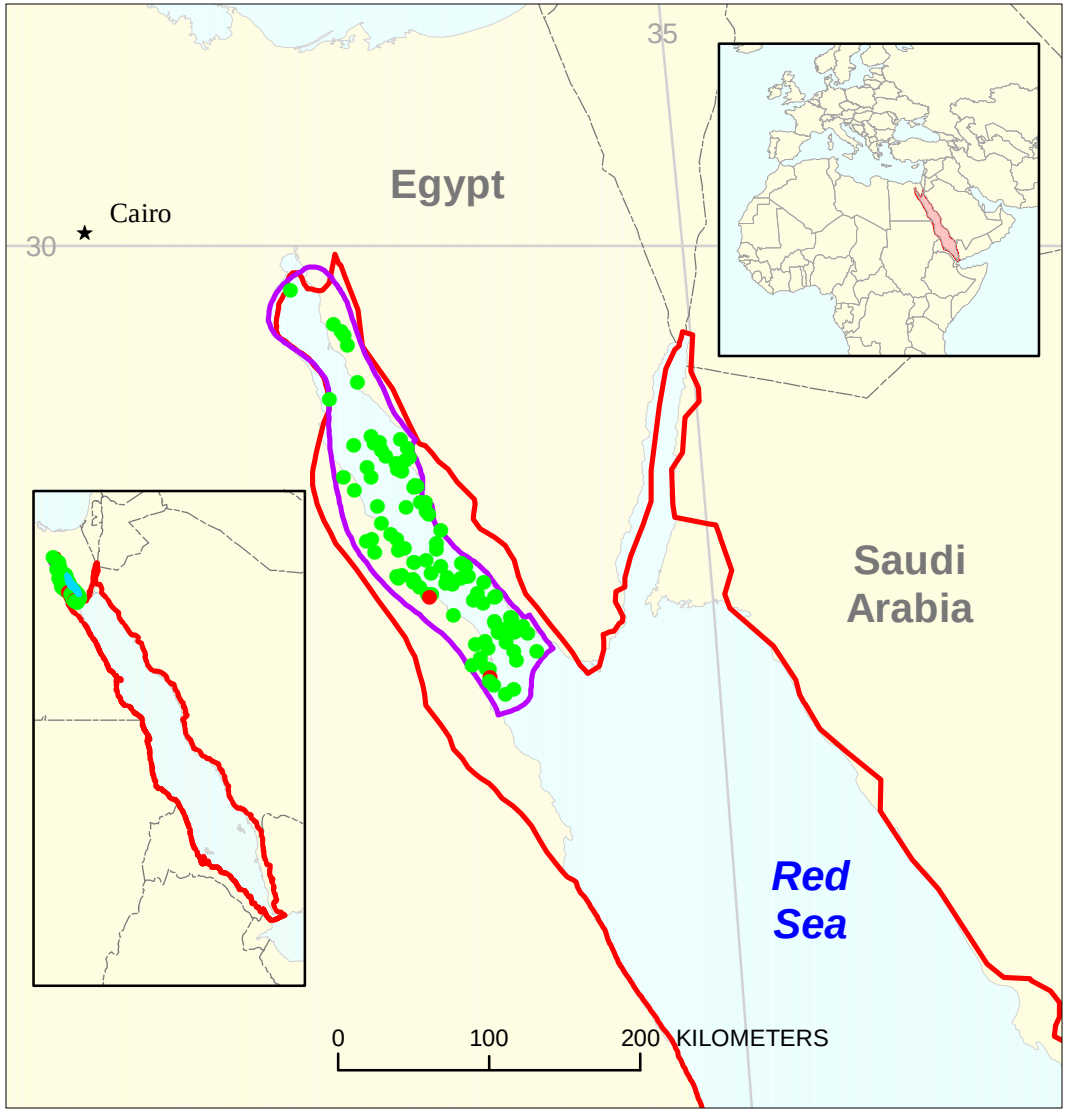
Go to Table of Contents

Go to index map

Gulf of Suez Block-Fault Fairway Assessment Unit 20710101



Gulf of Suez Block-Fault Fairway Assessment Unit 20710101
Red Sea Basin Geologic Province 2071

Geologic Summary

Detailed map of this assessment unit

Exploration/Discovery-History Data
- Plots of Known Field Sizes
- Plots of Grown Resources
- Tables

Assessment Input Data

Assessment Results
- Assessment Unit Summary
- Detailed Assessment Results
- Undiscovered Field-Size Distributions

USGS PROVINCE: Red Sea Basin (2071) **GEOLOGIST:** S.J. Lindquist

TOTAL PETROLEUM SYSTEM: Sudr-Nubia (207101)

ASSESSMENT UNIT: Gulf of Suez Block-Fault Fairway (20710101) (established)

DESCRIPTION: The Gulf of Suez Basin is an abandoned Miocene rift (part of the Red Sea rift system) between the northeastern Egypt deserts and the Sinai Peninsula, which includes shallow offshore and adjacent onshore areas. This assessment unit includes most of the Gulf of Suez Basin (and its production), except for its southeasternmost junction with the northwestern Red Sea Basin. It is approximately 15,000 sq km in area.

SOURCE ROCKS: Oil-prone, uniformly present, Upper Cretaceous (Campanian) Sudr Formation organic-rich, uraniferous marine limestone, with TOC content averaging 2.6 wt. % (maximum 21 wt. %) and thickness ranging from 25 to 75 m.

MATURATION: Dominantly Late Miocene, 6 to 12 Ma. The source rock is mature to oil generation in all graben and some horst areas. Local maturity to gas is established in deepest grabens.

MIGRATION: Migration paths range from simple, cross-fault juxtapositions of mature source rock and reservoir to more tortuous cross-fault migrations combined with upward movements through fault blocks to a seal.

RESERVOIR ROCKS: Primarily pre-rift, Paleozoic to Lower Cretaceous sandstones, collectively called Nubia, that were deposited in continental to shallow marine environments. Preserved gross Nubia thicknesses can exceed 1,000 m. Arithmetic average of Nubia porosity is 19 percent and of Nubia permeability is 700 mD.

TRAPS AND SEALS: Traps are predominantly tilted fault blocks of Miocene age. Rifting processes peaked approximately 18 Ma. The regional seal is extensive post-rift, Upper Miocene (10 to 5 m.y. old) salt, evaporite and shale hundreds of meters thick.

REFERENCES:

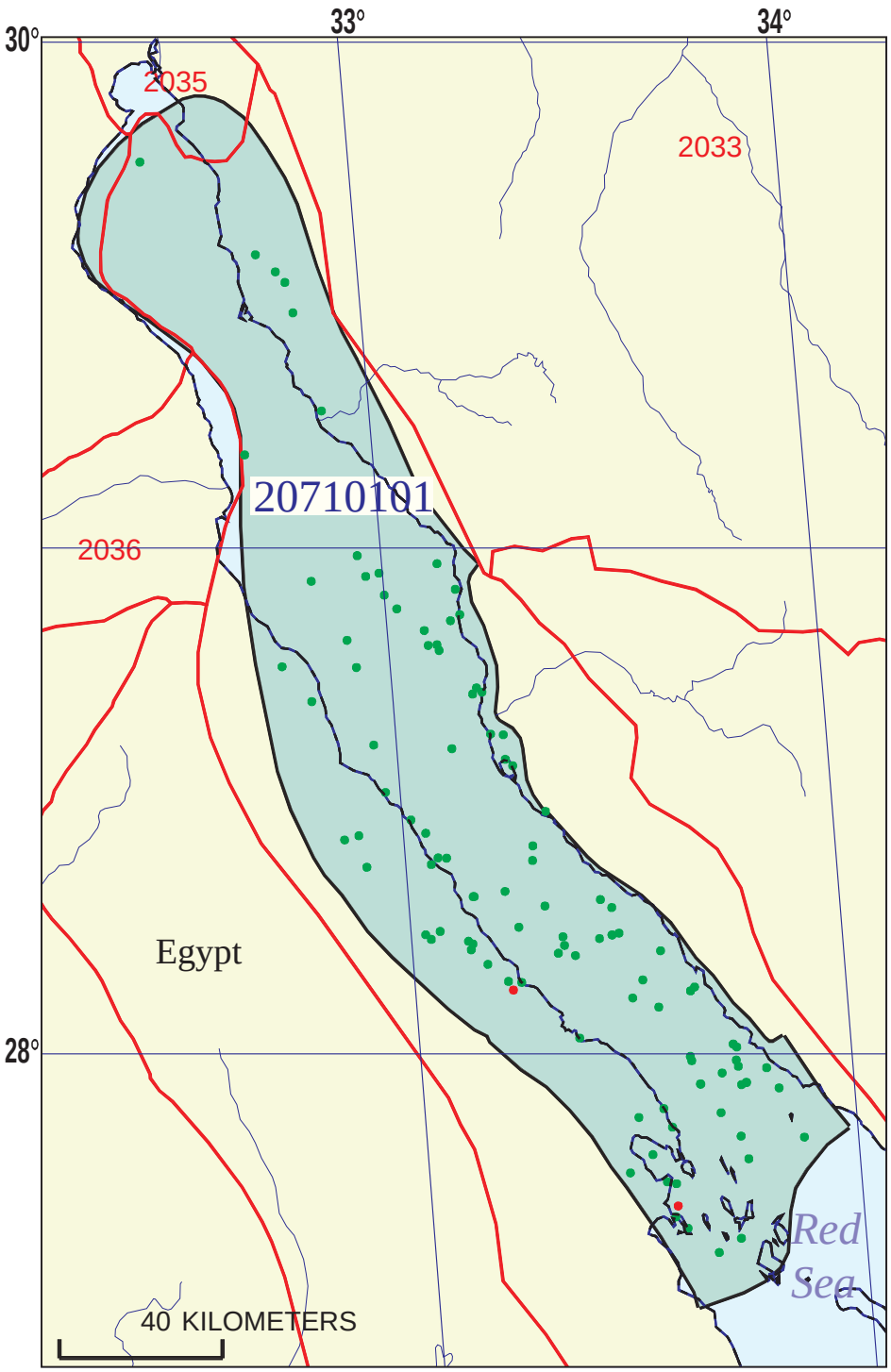
Barakat, A.O., Mostafa, A., El-Gayar, M.S., and Rullkotter, J., 1997, Source-dependent biomarker properties of five crude oils from the Gulf of Suez, Egypt: Organic Geochemistry, v. 26, no. 7/8, p. 441-450.

Lindquist, S.J., 1998, The Red Sea basin province—Sudr-Nubia(!) and Maqna(!) petroleum systems: U.S. Geological Survey Open-File Report 99-50-A, 21 p., 11 figs., 2 tables.

Patton, T.L., Moustafa, A.R., Nelson, R.A., and Abdine, S.A., 1994, Tectonic evolution and structural setting of the Suez Rift, *in* Landon, S.M., ed., Interior rift basins: American Association of Petroleum Geologists Memoir 59, p. 9-55.

Rohrback, B.G., 1983, Crude oil geochemistry of the Gulf of Suez, *in* Bjoroey, M., Albrecht, C., Cornford, C., de Groot, K., Eglinton, G., Galimov, E., Leythaeuser, D., Pelet, R., Rullkoetter, J., and Speers, G., eds., Advances in Organic Geochemistry, 1981, Proceedings of the International Meeting on Organic Geochemistry: New York, Wiley and Sons, p. 39-48.

Schutz, K.I., 1994, Structure and stratigraphy of the Gulf of Suez, Egypt, *in* Landon, S.M., ed., Interior rift basins: American Association of Petroleum Geologists Memoir 59, p. 57-96.



Gulf of Suez Block-Fault Fairway Assessment Unit - 20710101

EXPLANATION

- Hydrography
- Shoreline
- 2071 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 20710101 Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

SEVENTH APPROXIMATION
NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS

Date:……..	10/7/98		
Assessment Geologist:……..	T.S. Ahlbrandt		
Region:……..	Middle East and North Africa	Number:	2
Province:……..	Red Sea Basin	Number:	2071
Priority or Boutique……..	Priority		
Total Petroleum System:……	Sudr-Nubia	Number:	207101
Assessment Unit:……..	Gulf of Suez Block-Fault Fairway	Number:	20710101
* Notes from Assessor	Used MMS growth factor.		

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):… Oil

What is the minimum field size?……. 1 mmboe grown (≥1mmboe)
(the smallest field that has potential to be added to reserves in the next 30 years)
*Note: 60 fields plus another 60 "discoveries"
Number of discovered fields exceeding minimum size:…… Oil: 85 Gas: 2
Established (>13 fields) X Frontier (1-13 fields) Hypothetical (no fields)

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 58.6 2nd 3rd 14.4 3rd 3rd 13.8
Median size (grown) of discovered gas fields (bcfg):
1st 3rd 927.4 2nd 3rd 28.7 3rd 3rd

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	1.0
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	1.0
3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered field ≥ minimum size	1.0

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):…….. 1.0

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field ≥ minimum size…… 1.0

UNDISCOVERED FIELDS

Number of Undiscovered Fields: How many undiscovered fields exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

Oil fields:……min. no. (>0)	15	median no.	75	max no.	150
Gas fields:……min. no. (>0)	1	median no.	10	max no.	30

Size of Undiscovered Fields: What are the anticipated sizes (**grown**) of the above fields?:
(variations in the sizes of undiscovered fields)

Oil in oil fields (mmbo)…… min. size	1	median size	10	max. size	1000
Gas in gas fields (bcfg):…… min. size	6	median size	60	max. size	6000

Assessment Unit (name, no.)
Gulf of Suez Block-Fault Fairway, 20710101

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	500	1000	2000
NGL/gas ratio (bngl/mmcfg)……	30	50	70

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	20	30	40
Oil/gas ratio (bo/mmcfg)……			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

Oil Fields:	minimum	median	maximum
API gravity (degrees)……	12	28	55
Sulfur content of oil (%)……	0.5	2.2	5
Drilling Depth (m) ……	1000	3000	5000
Depth (m) of water (if applicable)……	0	40	100

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	1000	3000	5000
Depth (m) of water (if applicable)……	0	40	100

Assessment Unit (name, no.)
Gulf of Suez Block-Fault Fairway, 20710101

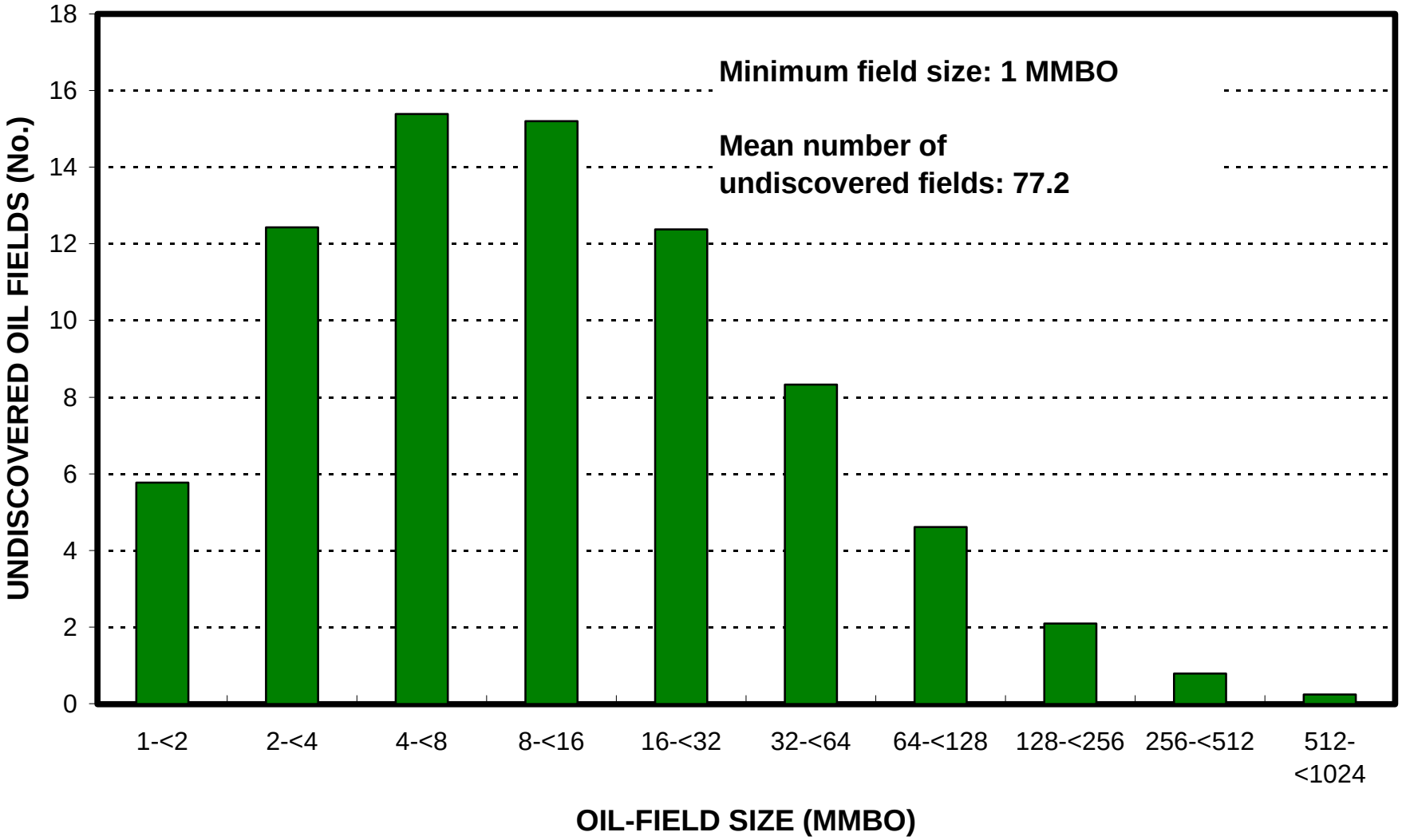
ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

1. Egypt represents 100 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		67	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		67	

Gulf of Suez Block-Fault Fairway, AU 20710101
Undiscovered Field-Size Distribution



Gulf of Suez Block-Fault Fairway, AU 20710101
Undiscovered Field-Size Distribution